

in other *Carnivora* there is always a slight trace of this process, but in none does it inclose the condyles, as in most of the *Mustelidæ*.

The genera contained in this family are *Mustela*, *Zorilla*, *Galictis*, Bell (which must not be confounded with the *Galictis* of Is. Geoffroy St. Hilaire, published in the 'Comptes Rendus' for October 1837, p. 581.), *Mellivora*, *Ursitaxus*, *Helictis* and *Gulo*, in which the true molar of the upper jaw is transverse; *Lutra* and *Mephitis*, in which this tooth approaches more or less to a square form; *Taxidea*, in which it is triangular; and lastly, *Meles*, *Arctonyx* and *Mydaus*, in which the true molar is longer than broad. This last-mentioned genus evinces an approach to the order *Insectivora*.

In the *Ursidæ* there are two well-developed true molars on either side of each jaw: the 'carnassière' here has changed its function, not being suited, as in other *Carnivora*, to cutting flesh. The palate is considerably elongated. In the Bears (*Ursus* and its subgenera) it is small, being robbed as it were of its nutriment by the true molars, which are very large. In the other *Ursidæ* (*Procyon*, *Nasua*, *Cercoleptes*, *Arctictis* and *Ailurus*,) the 'carnassière,' especially that of the upper jaw, and the true molars, are nearly equal in size, and also nearly resemble each other in other respects*.

In the true Bears the form of the lower jaw differs from that of any of the preceding *Carnivora* in having a projecting process on the under side of the ramus, and situated a little in advance of the angle of the jaw. The same character is also found in many Seals (*Phocidæ*), which in several other respects appear to approach the Bears.

VII.—*Summary Description of Four new Species of Otter.* By
B. H. HODGSON, Esq., Resident at Catmandu, Nepal †.

ONE of the most remarkable features of the mammalogy of Nepal is the great number of distinct species of *Otter* characterizing it. There are at least seven species, I believe, though not one of them is numerous in individuals, at least not in comparison of the common Otter of commerce, which is produced in the neighbourhood of Dacca and Sylhet. This rarity of species, added to the circumstance of the animals not being regularly hunted for their skins, renders it very difficult to procure live specimens; and without live specimens

* "From an examination of the external characters of *Bassaris astuta*, it appears to me that it belongs to this group."

† From the Asiatic Journal, No. 88, p. 319.

—which may be slain and their osteological as well as other characters thus accurately examined—the discrimination of specific differences is a work of extreme labour and delay. Many years ago I announced to Mr. Bennett, the late Secretary of the London Zoological Society, the fact that there are several species of *Lutra* in Nepal, and before he died he was nearly convinced of the correctness of the statement, though I could not then, nor can now, give a full exposition of even those with which I am best acquainted.

Waiting, however, for the perfect knowledge when the materials of it are not under command, is, I find, like waiting on the river's side for a dry passage after the waters have flowed past; and I shall therefore offer no apology for briefly characterizing those four of the seven Nepalese species of Otter of which I have considerable certainty, leaving the remaining three to some future occasion.

GENUS LUTRA.

1st Species—TARAYENSIS NOBIS.

Size, medial. *Structure*, typical. Skull and head much depressed. Lower incisors ranged nearly in line. Tail equal to two-thirds the length of the animal, and much depressed. Form robust. Nails compressed, exserted from the finger ends, and acute. Fur short and smooth. *Colour*—above, clear umber; below, and the hands and feet, pure yellowish white; the yellow tint deepest on the limbs; the pale colour on the head and neck extending upwards to the line of the ears—less so on the body; and the distinction of dark and pale hues very decidedly marked. Tail above and below, dark.

2nd Species—MONTICOLUS NOBIS.

Size, large. *Structure*, upon the whole similar to the above. Tail equal to more than two-thirds of the animal, and less depressed. Skull and head less depressed. Intermediate incisors of lower jaw ranged entirely within or behind the line of the rest. *Colour*—above, deeper than the above, or bistre brown; below, sordid hoary, vaguely defined, except on the edge of the lips and chin; limbs nearly as dark as the body. Fur longer and rough, or porrect from the skin in a considerable degree.

3rd Species—INDIGITATUS NOBIS.

General form and proportions of *Leptonyx*, to which it is affined. Habit of body more vermiform than in the above. Tail but half the length of the animal. Toes very short, and more than half buried in the palmary mass. Nails short and worn, but not depressed nor

truncated, as in *Leptonyx*. *Size*, medial. *Colour*—same as in the last, but deeper still, or dusky bistre; paler and ruddier on the body below, and albescent on the head below; but the colours not well defined, and only really distinct (except in shade) on the inferior surface of the head. Character of the fur as in the last, and indeed in all the mountain species.

4th Species—AURO-BRUNNEUS NOBIS.

Size, small. Habit of body still more vermiform. Tail less than two-thirds of the length of the body. Toes and nails fully developed. Fur longish and rough, as before. *Colour*—rich chestnut brown (the fruit) above; and golden red below and on the extremities.

Remarks.—The three last species are confined to the mountains, as is the first species to the plains at their foot. The dimensions in inches, and the weight of the four species are as follow:—

	1	2	3	4
Tip of snout to base of tail . }	26 to 28	30 to 32	22 to 24	20 to 22
Tail	16	20	10½	12 to 13
Weight	16 to 20 lbs.	20 to 24	11 to 13	9 to 11

I am, Sir,

Your obedient servant,

B. H. HODGSON.

Nepal, May, 1839.

VIII.—Information respecting Botanical Travellers.

Mr. Schomburgk's recent Expedition in Guiana.

[Continued from p. 434 of vol. iv.]

THE Yamanack of the Creoles, or Wawula of the Arawaaks, may be considered the representative of the Madagascarian *Lemur* in Guiana. It is the *Potos caudivolvulus* of Desm., or *Cercoleptes caudivolvulus* of Illiger. Its general appearance is so much like a *Lemur* that it has been classed under that family. In its sanguinary disposition, its teeth, and feet, it resembles the feline race, from which it differs however in its slightly prehensile tail, which is considerably longer than the body. The hind legs are a little longer than the fore, and they walk altogether on the soles and palms. They carry their food with the fore paw to the mouth, and are expert climbers. Their prehensile tail is of great advantage in climbing trees when in search of honey, their fur and skin being apparently impervious to the sting of bees. They feed likewise upon young birds, eggs, and mice; they pass the day in hollow trees and

stir out only by night. The glare of the day appears painful to their eyes; those which in a tamed state are exposed to it, appear uncomfortable and slow in their movements, while in the dark they are all dexterity. I have seen several in a tamed state, which when awakened in the day seemed uncomfortable and rolled themselves up again to sleep. Its tongue is long; this organ is therefore admirably qualified for sucking honey. When tamed it appears partial to syrups or any other sweets, but indeed nothing comes amiss to it, and it feeds as well on meat, yams, &c. as on fish.

They are more common at the sea coast, but inhabit likewise the Savannahs. The Macusi Indians of the Savannahs call it Yawari, the Warraus at the sea-coast Uvari.

Those coppices of wood, which rise from amidst the Savannahs like verdant isles from the bosom of a lake, are the favourite abode of an animal, which, if we except its plantigrade feet, approaches in its habits and appearance our martens. It is the *Gulo* of authors.

We observed two species in Guiana, the larger of which may be identified with the *Gulo barbarus*. The size of the individual from which the following description is taken, was two feet from the tip of the nose to the insertion of the tail, the latter being eleven inches. The head was broad and compact, the ears short and round, the back arched, the tail low and bushy, the legs thick and strong, especially the fore feet, which were somewhat shorter than the hinder. The head is gray, the fur above deep brown tipped with white; all the rest of the body is of a deep shining black, with the exception of a large whitish-yellow spot on the breast, which contrasts strongly with the other colours. It possesses the peculiarity of being able to erect all the hair of its bushy tail at pleasure.

The whole appearance of these animals bespeaks strength, and their toes being armed with crooked nails, they have every requisite for indulging in their sanguinary habits. Their principal food are small animals, as mice, rats, birds, and insects, but they also feed on fruit and are partial to honey. As they are expert climbers, they plunder the nests of the wild bees, and like the Coati or *Nasua*, are able to run down a tree which grows perpendicular, head foremost. They feed by day, and generally betake themselves to a hollow tree for their night quarters. Here they likewise seek refuge when hunted. They are found more commonly on Savannahs than elsewhere, and only occasionally in the forest; they never seek their food near human habitations. They are sometimes tamed, and are then gentle and playful; but they are easily excited, and when preparing for defence or war they erect the hair of their tail. They

possess the skill of cats in spying out and destroying rats and mice, which from their long slender shape, they are able to follow better to their retreat than the former. Two glands which are situated near the anus contain a fluid which possesses a disagreeable odour. The animal is called by the Arawaak Indians HACCА, by the Macusi MAIKANG.

The Grisons have been divided from the true Wolverines (*Gulo*), and Mr. Bell has formed the genus *Galictis*. Guiana possesses two species, namely *Galictis vittata* and *G. Allamandi* of Bell. The *Galictis vittata* or Petit Frurat of Azara, inhabits the mountainous districts where the Essequibo has its sources. I saw the first in a tame state at a Woyawai settlement in the Acarai mountains. It measured about 16 inches from the tip of the nose to the insertion of the tail, the latter being 6 inches long. Its colour is of a light-brown on the back, but near the head it is of a pale-gray colour, mixed with black; the muzzle, throat, chest, and body underneath are of a shining black.

The claws are strong and sharp, and the toes are half connected by a membrane. In its tamed state it lived on boiled fish, meat, fruits, yams, &c., but in the forests it subsists on birds, reptiles, and small game. It feeds during day, and selects the hollow of a tree for its abode during night.

The second species, *Galictis Allamandi*, Bell*, is equally scarce in Guiana; but it is occasionally met with near the sea coast in Demerara. It is somewhat larger than the *Galictis vittata*; its total length is about $2\frac{1}{2}$ to 3 feet, and although it exhibits the same general character, it differs widely in its colouring. The fur on its back is at the base of a deep black, and the points are white; the muzzle, lower jaw, throat, and part of the belly are of a shining black. A whitish line extends from between the eyes over the ears to the sides of the neck. In a state of nature it is said to be ferocious, and it is more difficult to tame it even when taken in a young state than the *Gulo barbarus*. I have been told of one which was kept on board of a colony schooner; this is however the only instance which came to my knowledge where it had been reconciled to a domesticated state.

The specimen which I possess in my collection appears to be the young of *Galictis Allamandi*; the hairs on its back are more of a silvery gray than in the adult, but there are no specific differences.

Both species are alike in their habits; and, aware of their inca-

* Vide Mr. T. Bell on the genus *Galictis*. Trans. Zool. Soc. vol. ii. Pt. 3, p. 201.

capacity to overtake their prey by swiftness, they resort to stratagem. When pressed by hunger they do not despise carrion. The *Gulo barbarus* and *Galictis vittata* which I have seen in a tame state, had the greatest aversion for water. I recollect the boys at the Woyawai settlement amused themselves with carrying the tame *Galictis vittata* to the banks of the brook; it availed itself of the first opportunity to escape, and if it had wet its feet, it used the same manœuvres as a cat to get rid of any moisture which might have remained on it. The *Gulo barbarus* is equally fearful of the water. If, therefore, naturalists have observed any resemblances between the Grison and the Otter, this does not refer to their habits. It may resemble the bear in its gait and semi-plantigrade feet, but there exists no further affinity; while at the first glance, its slender body, the shortness of its legs, the softness of its fur, its dentition and sanguinary habits, and not least, the strong odour, point to the typical *Mustelida* with regard to the position which the Grison ought to occupy.

Our tents were pitched on the 9th October, 1838, at the foot of a hillock, the summit of which was crowned by a remarkable natural column, known to the Macusi Indians under the name of Pourae Piapa, or the felled tree, from the resemblance which it bears to a trunk of a tree deprived of its leafy crown. While we were ascending the hill for a nearer inspection of this wonderful freak of nature, the Indians had set the Savannahs on fire. A general bustle of those who had remained in the camp attracted my attention. I saw the men armed with bows and arrows, and accompanied by their dogs under full cry in pursuit of some game. The chase was of short duration, and when reaching the spot where the pursuers had come to a stand, I found that an Armadillo of gigantic size, which no doubt had been chased by the flames from its retreat, had caused the commotion. It was lying there a round misshapen mass, its head partly buried under its armour, the feet drawn together, and its body pierced by numerous arrows. Ever and anon the barking dogs inflicted new wounds, or another iron-headed arrow was sent through its shell into the flesh of the poor animal, which offered not the slightest resistance to its tormenters; and I do not know how long they would have continued to inflict new tortures, if I had not desired them to end its sufferings by the heavy stroke of a club.

I continued my visit to the Pourae piapa with the intention of taking the dimensions of the Armadillo after my return to the camp; in this I was however disappointed; when I arrived there it was cut

up, and parts of it were already boiling in the pots of the Indians, not for the purpose of eating it, as the Macusi abhors the flesh of this species of Armadillo, but for the sake of extracting its fat or oily substance.

I estimated its weight from 110 to 120 lbs.*, its height about 3 feet, its length $5\frac{1}{2}$ feet. Its tail was about 14 to 16 inches in length, and its root nearly as thick as a man's thigh, tapering very abruptly. The fore foot had five toes, the middle one of which was $7\frac{1}{2}$ inches in length. These are the only details which I can offer of a species which in its size surpasses the largest giant Armadillo known (*Dasypus giganteus*, Desm.). As far as I recollect, the head was comparatively small; but as I intended to have it inspected more closely on my return, I have mentioned only such circumstances as have fixed themselves in my memory, and which I wrote down after my intentions were frustrated by the Indians. I cannot pretend to assert that it is a different species from *Dasypus giganteus*, but its enormous size will attract the attention of naturalists and geologists to the fossil genera, which if compared with the existing species will not offer so great a difference in size. The Macusi Indians in our train named it MAOURAIMA, the Wapisianas MARURA, the Warraus OKAIYÉ, the Arawaaks IASSI O HARA.

I possess from Mr. Vieth, the following note of a species which I do not doubt was the *Dasypus giganteus*. "I stuffed at Devonshire Castle Plantation in Demerara, an Armadillo which weighed 70lbs., but I did not take its dimensions; and eight years having since elapsed, the present description is entirely from memory. The shell may have been 2 feet to $2\frac{1}{2}$ feet long, and its total length about 5 feet, of which the tail was about 2 feet. The shell was very thick and hard, covered with scales of different shape. On the belly and those parts where it was without scales, were a few scattered hairs; the claws on the fore feet were very long and strong. The tail, which was covered with the same kind of coat of mail as the back, was about 3 inches in diameter, at the root gradually tapering to a point. The back and all those parts which had the scaly covering were of a horn colour; the under part, which was without scales, whitish. As it was killed by Negroes near the coast I could not procure the Indian name."

The third species in size is the *Dasypus encoubert*, Desm. with six or seven bands. It appears to be very common at the savannahs which extend between the rivers Berbice and Demerara.

* Two men were required to carry it when they took it to our halting place.